

SEQUENCE LISTING

<110> Meulewater, Frank
Cornelissen, Marc
Van Eldik, Gerben
Jacobs, John

<120> Methods and means for delivering inhibitory RNA to plants and applications thereof

<130> FKOSAT

<140>

<141>

<160> 15

<170> PatentIn Ver. 2.0

<210> 1

<211> 3684

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:cDNA copy of the nucleotide sequence of the genome of TNV-A

<400> 1

```

agtattcata ccaagaatac caaatagggtg caaggcctta ctcagctaaa gagtctaaaa 60
tggagctacc aaaccaaacac aagcaaacgg cggccgaggg ttctgtatct ttcctaaaact 120
ggctatgcaa cccatggaga cgacagcgaa cagtcaacgc tgcagttgcg ttccaaaaag 180
atcttctcgc cattgaggat tccgagcatt tggatgacat caatgagtgt ttcgaggagt 240
ctgctggggc acaatctcag cgaactaagg ttgtcgccga cggagcatat gcccccgcaa 300
aatccaacag gaccgcgccg gttcgtaagc agaagaagca caagtttgta aaatatcttg 360
tcaacgaagc tcgtgccgag tttggattgc ccaaaccaac tgaggcaaac agacttatgg 420
tccaacattt cttgctcaga gtgtgcaagg attggggcgt tgttactgcc cagctacacg 480
gcaatgttgc actagctttg ccactgggtg tcatcccaac ggaagatgat ctgctatcac 540
gagcattgat gaacacacat gctactagag ccgctgtacg aggcattggac aatgtccaag 600
gggaggggtg gtggaacaat aggttgggga ttgggggccca ggtcggactg gccttcgggt 660
ccaaataggg gtgccttgaa aggaggccag gattctccac gtccgtttcg cgtggggaac 720
atcctgatct ggtggtcata ccatcagggc gccctgagaa acagcgtcag ttgttacgct 780
atagtgggat aggcggccat ttattaatcg gcatccacaa caactctctt tccaacctgc 840
gtaggggctt gatggaaaga gtattctatg tctgagggcc caatgggctt caagacgccc 900
ctaagcccgt caaggagct tttcgaaccc ttgataagtt tcgtgatctc tataactaaa 960
atagttggcg tcatacccct gtaactagtg aacaattcct aatgaattac acgggcagga 1020
aactgactat ttacagagag gcggttgata gtttgtcgca tcaaccctt agctcacgag 1080
atgcgaaact aaagacattc gtgaaggccg aaaaattaaa tctttctaag aagcctgacc 1140

```

tctgtccccag	gggtcatccaa	cctagatcgc	ctcgggtataa	cgtttgtttg	ggcaggtacc	1200
tccgacatta	tgagcatcac	gcgttttaaaa	ccattgccaa	gtgctttggg	gaaatcacgg	1260
tcttcaaagg	gtttactctg	gagcaacaag	gggaaatcat	gcgctcgaag	tggaataaat	1320
atgttaatcc	cgtcgcagtc	ggactcgacg	ccagtcgttt	cgaccaacac	gtgtctgttg	1380
aagcactcga	gtatgagcat	gaatttttacc	tcagagacta	cccaaattgat	aaacagctaa	1440
aatgggtgct	aaagcagcaa	ttgtgcaacg	taggaacggc	attcgccagt	gacggcatta	1500
taaaatacaa	gaagaagggt	tgtagaatga	gcggagacat	gaacacgagt	ttggggcaact	1560
gcatttcta	gtgcgccatg	gtctacgggt	tgaagaaca	cttaaaccatc	aatttgtccc	1620
ttgcaaataa	tggggatgac	tgcgtcattg	tctgtgagaa	agcggattta	aagaaattga	1680
caagcagcat	cgagccatat	ttcaagcagt	ttggattcaa	gatggaagtg	gaaaaacccg	1740
tggatatatt	tgagcgcata	gaatttttgcc	aaacccaacc	tgtgttcgat	ggatcccagt	1800
acatcatggt	acgcaaacct	tctgtggtaa	catctaaaga	cgtcactagc	cttatcccat	1860
gtcaaacgaa	agcacaatac	gcagaatggc	tgcaagctgt	aggtgagtgt	ggcatgagca	1920
ttaacgggtg	gattcctgtc	atgcagaatt	tctacaaaaa	gctccaaact	ggcatccgcc	1980
gcacaaaatt	caccaagacc	ggcgagttcc	agacgaacgg	attgggggtat	cactctagat	2040
atatgcatag	agtggcccgg	gttccttcgc	ctgaaacccg	tttatccttc	tatctagctt	2100
tcggtatcac	accagacctc	caagaagcat	tggagatctt	ctatgatacc	cacaggcttg	2160
agttggatga	tgttatccca	actgatacct	accaagtgtc	aggagagcat	ttgatcaatg	2220
gattaccaa	ctgatgtaac	ggaggacaat	gtgcaaatac	gcggtcgggc	taggagcggt	2280
gagggtaaga	aacacaatgg	ttcgggatta	actggcgtta	agcgtcacgc	ggtgagcgaa	2340
acatctcaga	aatcacagca	aggtactggc	aatggaacta	tgaccaatat	agccgaagaa	2400
cagaccatta	cgtgacata	caactttaac	ttttaagtta	tggctgcgtg	tcgctgttgt	2460
gatacttcac	caggtattac	actattccct	tactttgcaa	ttctcatcct	tatattggca	2520
atacttgttg	tagggactcc	caatcaacaa	tatcaccatt	ctccaagcac	ttacgagtac	2580
aagactcaac	acatttcgat	cgcaaaatag	acatggcagg	aaagaagaac	aacaacaacg	2640
gtcagtatat	aatactgcgt	actccagagc	aacaggtgga	gatagaccag	cgcaacgccc	2700
gtcgtgctca	aatgggtcgc	atgaagaagg	ctagacagcc	cgttcagcga	tacttacagc	2760
aacacgggtt	gcgaaacgga	ttgtccggta	gagggggcta	catagtggct	cccacctccg	2820
gggggggttg	cactcgaccc	atagtgccga	aattctccaa	caggggagat	tccactatag	2880
tccgtaacac	tgagattttg	aacaaccaa	tcttagcggc	gctaggcgca	ttcaatacaa	2940
caaactccgc	actgattgca	gcagcaccat	catggctggc	tagcatcgct	gatctttaca	3000
gtaaatacag	atggctctca	tgtgagatca	tctacattcc	aaaatgcccc	accaccacca	3060
gtggatcaat	tgccatggct	ttcacatacg	acagaaatga	cgctgcaccc	accgcaaggg	3120
ctcagctgtc	acaatcttac	aaggccatca	attttccacc	gtatgcggga	tacgacggag	3180
cagcatattt	gaattcgaac	cagggagctg	ggtcagccat	cgccgttcaa	cttgatgtta	3240
ccaagttgga	caagccatgg	tacccacta	tctcctctgc	cggtctcggg	gcgctcagcg	3300
tctcgtatca	gaaccaattc	tgccccgcgt	cccttgttgt	cgctagcgat	gggggacccg	3360
ctactgctac	tccagcaggg	gaccttttca	tcaagtacgt	gattgagttc	attgaaccaa	3420
tcaaccaaac	aatgaacgtc	tagttctttg	tactgtaact	tggctaattg	ctaaggtgga	3480
gtcacaccat	tggagacgga	gacggatcct	gggaaacagg	cttgacgggc	gggggggtgg	3540
gcccccgacg	acgcatcact	ccggatacca	atggtacacc	actatggcag	ggtctgccaa	3600
ggtcttgtgc	accaagaacc	cctggaaacg	ggggggaggg	gggtagcaca	tatcatccag	3660
attgaggggc	ctttgcccc	cccc				3684

<211> 6395

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: cDNA copy of
the nucleotide sequence of the genome of TMV-U1

<400> 2

gtatTTTTac aacaattacc aacaacaaca aacaacaaac aacattacaa ttactatttta 60
caattacaat ggcatacaca cagacagcta ccacatcagc tttgctggac actgtccgag 120
gaaacaactc cttgggtcaat gatctagcaa agcgtcgtct ttacgacaca gcggttgaag 180
agtttaacgc tcgtgaccgc aggcccaagg tgaacttttc aaaagtaata agcgaggagc 240
agacgcttat tgctaccggg gcgtatccag aattccaaat tacattttat aacacgcaaa 300
atgccgtgca ttgcgttgca ggtggattgc gatctttaga actggaatat ctgatgatgc 360
aaattcccta cggatcattg acttatgaca taggcgggaa ttttgcacgc catctgttca 420
agggacgagc atatgtacac tgctgcatgc ccaacctgga cgttcgagac atcatgcggc 480
acgaaggcca gaaagacagt attgaactat acctttctag gctagagaga ggggggaaaa 540
cagtcccaa cttccaaaag gaagcatttg acagatacgc agaaattcct gaagacgctg 600
tctgtcacia tactttccag acaatgcgac atcagccgat gcagcaatca ggcagagtgt 660
atgccattgc gctacacagc atatatgaca taccagccga tgagttcggg gcggcactct 720
tgaggaaaaa tgtccatacg tgctatgccg ctttccactt ctctgagaac ctgcttcttg 780
aagattcata cgtcaatttg gacgaaatca acgctgtgtt ttgcgcgat ggagacaagt 840
tgaccttttc ttttgcacga gagagtactc ttaattattg tcatagttat tctaattatc 900
ttaagtattg gtgcaaaact tacttcccgg cctctaatag agagggtttac atgaaggagt 960
ttttagtcac cagagttaat acctggtttt gtaagttttc tagaatagat acttttcttt 1020
tgtacaaagg tgtggcccat aaaagtgtag atagttagca gttttatact gcaatggaag 1080
acgcatggca ttacaaaaag actcttgcaa tgtgcaacag cgagagaatc ctccttgagg 1140
attcatcatc agtcaattac tggtttccca aaatgaggga tatggtcacg gtaccattat 1200
tcgacatttc tttggagact agtaagagga cgcgcaagga agtcttagtg tccaaggatt 1260
tcgtgtttac agtgcttaac cacattcgaa cataccaggc gaaagctctt acatacga 1320
atgttttgc ctttgtcgaa tcgattcgat cgagggtaat cattaacggg gtgacagcga 1380
ggtccgaatg ggatgtggac aaatctttgt tacaatcctt gtccatgacg ttttacctgc 1440
atactaagct tgccgttcta aaggatgact tactgattag caagtttagt ctcgggttca 1500
aaacggtgtg ccagcatgtg tgggatgaga tttcgtggc gtttggaac gcatttccct 1560
ccgtgaaaga gaggctcttg aacaggaaac ttatcagagt ggcaggcgac gcattagaga 1620
tcagggtgcc tgatctatat gtgaccttc acgacagatt agtgactgag tacaaggcct 1680
ctgtggacat gcctgcgctt gacattagga agaagatgga agaaacggaa gtgatgtaca 1740
atgcactttc agagttatcg gtgttaaggg agtctgacaa attcgatgtt gatgtttttt 1800
cccagatgtg ccaatctttg gaagttgacc caatgacggc agcgaagggt atagtgcg 1860
tcatgagcaa tgagagcggg ctgactctca catttgaacg acctactgag gcgaatgttg 1920
cgctagcttt acaggatcaa gagaaggctt cagaagggtg tttggtagtt acctcaagag 1980
aagttgaaga accgtccatg aagggttcga tggccagagg agagttacaa ttagctggtc 2040
ttgctggaga tcatccggag tcgtcctatt ctaagaacga ggagatagag tcttttagagc 2100
agtttcatat ggcaacggca gattcgtaa ttcgtaagca gatgagctcg attgtgtaca 2160
cgggtccgat taaagttcag caaatgaaaa actttatcga tagcctggta gcatcactat 2220
ctgctgcggg ttcgaatctc gtcaagatcc tcaaagatac agctgctatt gacctgaaa 2280
cccgtcaaaa gtttgagtc ttggatgttg catctaggaa gtggttaatc aaaccaacgg 2340
ccaagagtca tgcattgggg gttgttgaaa ccacgcgag gaagtatcat gtggcgcttt 2400
tggaatatga tgagcagggt gtggtgacat gcgatgattg gagaagagta gctgtcagct 2460
ctgagtctgt tgtttattcc gacatggcga aactcagaac tctgcgcaga ctgcttcgaa 2520

acgggagaacc	gcatgtcagt	agcgcaaagg	ttgttcttgt	ggacggagtt	ccgggctgtg	2580
ggaaaaccaa	agaaattctt	tccagggtta	attttgatga	agatctaatt	ttagtacctg	2640
ggaagcaagc	cgcggaaatg	atcagaagac	gtgcgaattc	ctcagggatt	attgtggcca	2700
cgaaggacaa	cgtaaaacc	gttgattctt	tcatgatgaa	ttttgggaaa	agcacacgct	2760
gtcagttcaa	gaggttattc	attgatgaag	ggttgatgtt	gcatactggt	tgtgttaatt	2820
ttcttgtggc	gatgtcattg	tgcgaaattg	catatgttta	cggagacaca	cagcagattc	2880
catacatcaa	tagagtttca	ggattcccgt	accccgccca	ttttgccaaa	ttggaagttg	2940
acgaggtgga	gacacgcaga	actactctcc	gttgtccagc	cgatgtcaca	cattatctga	3000
acaggagata	tgagggcttt	gtcatgagca	cttcttcggt	taaaaagtct	gtttcgcagg	3060
agatggtcgg	cggagccgcc	gtgatcaatc	cgatctcaaa	acccttgcat	ggcaagatcc	3120
tgactttttac	ccaatcggat	aaagaagctc	tgctttcaag	agggtattca	gatgttcaca	3180
ctgtgcatga	agtgcaaggc	gagacatact	ctgatgtttc	actagttagg	ttaaccctta	3240
caccagtctc	catcattgca	ggagacagcc	cacatgtttt	ggtcgcattg	tcaaggcaca	3300
cctgttcgct	caagtactac	actgtttgta	tggatccctt	agttagtatc	attagagatc	3360
tagagaaact	tagctcgtac	ttgttagata	tgtataaggt	cgatgcagga	acacaatagc	3420
aattacagat	tgactcggtg	ttcaaagggt	ccaatctttt	tgttgcagcg	ccaaagactg	3480
gtgatatttc	tgatatgcag	ttttactatg	ataagtgtct	cccaggcaac	agcaccatga	3540
tgaataatth	tgatgctgtt	accatgaggt	tgactgacat	ttcattgaat	gtcaaagatt	3600
gcatattgga	tatgtctaag	tctgttgctg	cgcctaagga	tcaaatcaaa	ccactaatac	3660
ctatggtacg	aacggcggca	gaaatgccac	gccagactgg	actattggaa	aatttagtgg	3720
cgatgattaa	aaggaacttt	aacgcacccg	agttgtcttg	catcattgat	attgaaaata	3780
ctgcatcttt	agttgtagat	aagttttttg	atagttatth	gcttaaagaa	aaaagaaaac	3840
caaataaaaa	tgtttctttg	ttcagtagag	agtctctcaa	tagatggtta	gaaaagcagg	3900
aacaggtaac	aataggccag	ctcgcagatt	ttgatthttg	agatthtgcca	gcagthgatc	3960
agtacagaca	catgattaa	gcacaaccca	agcaaaaatt	ggacacttca	atccaaacgg	4020
agtacccggc	tttgcgacg	attgtgtacc	attcaaaaaa	gatcaatgca	atattthggcc	4080
cgthgtthtag	tgagcttact	aggcaattac	tggacagtg	tgattcgcagc	agatthttgt	4140
ttttcacaa	aaagacacca	gcgcgagatt	aggatthctt	cggagatctc	gacagtcatg	4200
tgccgatgga	tgtcttgag	ctggatatat	caaaatacga	caaatctcag	aatgaattcc	4260
actgtgcagt	agaatacgag	atctggcgaa	gattgggtth	tgaagacttc	ttggggagaag	4320
tttggaacaa	agggcataga	aagaccaccc	tcaaggatta	taccgcaggt	ataaaaactt	4380
gcatctggta	tcaaagaaa	agcggggacg	tcacgcagtt	cattggaaaac	actgtgatca	4440
ttgctgcatg	tttggcctcg	atgcttccga	tggagaaaat	aatcaaagga	gcctthttgcg	4500
gtgacgatag	tctgctgtac	tttccaaagg	gttgtgagtt	tccggatgtg	caacactccg	4560
cgaatcttat	gtggaattht	gaagcaaaaac	tgtthtaaaaa	acagtatgga	tactthttgcg	4620
gaagatatgt	aatacatcac	gacagaggat	gcatttgtgt	ttacgatccc	ctaaagttga	4680
tctcgaaact	tgggtgctaaa	cacatcaagg	attgggaaca	cttggaggag	ttcagaaggt	4740
ctctthtgta	tgttgctgtt	tcgttgaaaca	attgtgcgta	ttacacacag	ttggacgcag	4800
ctgtatggga	ggttcataag	accgcccctc	caggttcggt	tgtthtataaa	agtctggtga	4860
agtatthgtc	tgataaagtt	ctthtttagaa	gtthgtthtat	agatggctct	agttgttaaa	4920
ggaaaagtga	atatcaatga	gtthtatcgac	ctgacaaaaa	tggagaagat	cttaccgtcg	4980
atgtthtacc	ctgtaaagag	tgttatgtgt	tccaaaagttg	ataaaaataat	ggttcatgag	5040
aatgagtcac	tgtcagaggt	gaaccttctt	aaaggagtta	agcttatthga	tagtggatac	5100
gtctgtthtag	ccggtthtgg	cgtcacgggc	gagtggaact	tgcttgacaa	ttgcagagga	5160
ggtgtgagcg	tgtgtctggt	ggacaaaagg	atggaaaagag	ccgacgaggc	cactctcgga	5220
tcttactaca	cagcagctgc	aaagaaaaga	tttcagttca	aggtcgttcc	caattatgct	5280
ataaccaccc	aggacgcgat	gaaaaacgtc	tggcaagtht	tagthtaatat	tagaaatgtg	5340
aagatgtcac	cgggtthtctg	tccgctthct	ctggagthtg	tgtcgggtgtg	tattgtthtat	5400

```

agaaataata taaaattagg tttgagagag aagattacaa acgtgagaga cggagggccc 5460
atggaactta cagaagaagt cgttgatgag ttcattggaag atgtccctat gtcgatcagg 5520
cttgcaaagt ttcgatctcg aaccggaaaa aagagtgatg tccgcaaagg gaaaaatagt 5580
agtaatgata ggtcagtgcc gaacaagaac tatagaaatg ttaaggattt tggaggaatg 5640
agtttttaaaa agaataattt aatcgatgat gattcggagg ctactgtcgc cgaatcggat 5700
tcgttttaaaa tatgtcttac agtatcacta ctccatctca gttcgtgttc ttgtcatcag 5760
cgtggggccga cccaatagag ttaattaatt tatgtactaa tgccttagga aatcagtttc 5820
aaacacaaca agctcgaact gtcgttcaaa gacaattcag tgagggtgtg aaaccttcac 5880
cacaagtaac tgttaggttc cctgacagtg actttaaggt gtacaggtag aatgcggtat 5940
tagaccgct agtcacagca ctgttaggtg cattcgacac tagaaataga ataatagaag 6000
ttgaaaatca ggcgaacccc acgactgccg aaacgttaga tgctactcgt agagtagacg 6060
acgcaacggt ggccataagg agcgcgataa ataatttaat agtagaattg atcagaggaa 6120
ccggatctta taatcggagc tctttcgaga gctcttctgg tttggtttg accctctggc 6180
ctgcaacttg aggtagtcaa gatgcataat aaataacgga ttgtgtccgt aatcacacgt 6240
gggtgcgtacg ataacgcata gtgtttttcc ctccacttaa atcgaagggt tgtgtccttg 6300
atcgcgcggg tcaaatgtat atggttcata tacatccgca ggcacgtaat aaagcgaggg 6360
gttcgaatcc ccccgttacc cccggtaggg gccca 6395

```

<210> 3

<211> 1245

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: cDNA copy of
the nucleotide sequence of the genome of STNV-2

<400> 3

```

agtaaagaca ggaaacttta ccgactatca gaatgacaaa acgtcaaagc aaacaatcaa 60
accgcaagag cgttgcatca cagggtgcga gtattgttga gtcaatggct gagcagaagc 120
gatttgcttt tcttacgaac accaacacag tctactacagc aggtaccgtg atcaacctga 180
gcaacaacat cgtgcaagga gatgaccttg ttaatcgcac cggagaccag attaagacca 240
tacaccagac tttattgact cgggtgtacag gaattaccaa cagccaaagc tttcggttca 300
tctggtttcg tgacaacacc aataggggga ctacaccggc tgtgactgag gtgttagaca 360
gtgctagtat aacatcccag tataacccca ctacgttcca gcaaaagagg ttcactgttt 420
tccaagattt catgttggat acctctatag ttggacgtgt gattgtccat cggactgccg 480
ttgataagaa acggcgtgag atattttaca acggtgctgc ttctgtagcc gcgtcaaagt 540
gccccggtgc cacatttgta cttgtcattg gatcacatgc cactggacag tatgatgtga 600
cagccgagat tgtttatctg gacatgtaga ccatggtcat gatgatgata gtgaaggacg 660
ctgaaagatg cgtagctacc ctctggtgc acttctctgg gcaaagcaga accaaagggt 720
acgggtggtac ggccgacagt agtcctgaac tagtaaatca ggaccgggag aaaaccagct 780
gacggctaaa tccattccca ctagtgtatt agtggaacga ggcccccgct gaattgggggt 840
ggctgcatgg ggtggaaaac catgtggtcg cagtcatttc tctatgcat tattgtctca 900
atacttgtgt gcaacaatgc tgtaaatcaa cgtagcactc aacatcactt caaaaccccc 960
tccatgtcac aagaatcaag atgcatgtct gtgttttagc gtatatattt tgcattccact 1020
tgatcgtgat tttgccctgg gcacctcgcg cggttggtac ccgcgagac tccccacagc 1080
aacatggcat taggcaggga taaggatatg tgactagaca aatgcgcgtg aagctggaaa 1140
gtccggttag cagtgggggt gtgcggaatg cagcctcaac aaggatatag tgctgcatag 1200

```

gagatgtgaa cctttcaaac ttgaattcaa gtctcatgac tgccc

1245

<210> 4

<211> 1058

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: cDNA copy of
the nucleotide sequence of the genome of STMV

<400> 4

agtaaactta ccaatcaaaa gacctaacca acaggactgt cgtggtcatt tatgctgttg 60
ggggacatag ggggaaaaca tattgccttc ttctacaaga ggccttcagt cgccataatt 120
acttggcgcc caattttggg ttccagttgc tgtttccagc tatggggaga ggtaaggtta 180
aaccaaaccg taaatcgacg ggtgacaatt cgaatgttgt tactatgatt agagctggaa 240
gctatcctaa ggtcaatccg actccaacgt gggtcagagc catacctttc gaagtgtcag 300
ttcaatctgg tattgctttt aaagtaccgg tggggtcact attttcggca aatttcggga 360
cagattcctt tacaagcgtc acagtgatga gtgtccgtgc ttggaccag ttaacaccgc 420
cagtaaata gaacagtttt gtgaggctga agccattgtt caagactggt gactctactg 480
aggagttcga agggcgtgca tcaaacatca acacacgagc ttctgtaggg tacaggattc 540
caactaattt gcgtcagaat actgtggcag cgcacaatgt atgcgaagta agaagcaact 600
gtcgacaagt cgccttggtt atttcgtgtt gttttaactg aacctcgaca taagcctttt 660
ggatcgaagg ttaaacgatc cgctcctcgc ttgagcttga ggccggcgtat ctcttatgtc 720
aacagagaca ctttgggtcta tggttgtata acaatagata gactcccgtt tgcaagatta 780
gggttaacag atcttgccgt tagtctggtt agcgcgtaac cggccttgat ttatggaata 840
gatccattgt ccaatggctt tgccaatgga acgcccagct ggctgtataa tacgtcgttg 900
acaagtacga aatcttggtt gtgtttttcc ctccacttaa atcgaagggg tttgttttgg 960
tcttcccgaa cgcatacgtt agtgtgacta ccgttggttc aaacaagtaa aacaggaagg 1020
gggttcgaat ccctccctaa ccgcggttaa gcgcccca 1058

<210> 5

<211> 6355

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: cDNA copy of
the nucleotide sequence of the genome of TMV-U2

<400> 5

gatgttttaa tagttttcga caacaacaat taaaacaaaa acaacatatt acaaacaaca 60
aacaacaaca atggcacaca tacaatctat aattagcaac gcccttcttg aaagcgtgag 120
tggtaaaaac actctcggtt atgaccttgc aagaaggcgc atgtacgata cggccgtgga 180
agaattttaac gcccgcgacc gtagacaaaa ggtcaacttt tccaaaacta ttagcgaaga 240
gcaaacgctt ctagtctcca acgcgtaccc ggagttccag attacctttt ataatactca 300
aaatgccgta cacagtttgg ctggaggttt gagagcatta gaattggaat atctgatgct 360
acaagttccc tatggatcgc cgacatatga tataggtggg aactttgcag cacatttgtt 420

caaaggcagg	gattacgtgc	attgctgtat	gcccaatctg	gacatacgag	atataatgag	480
gcacgaagga	caaaaggact	caattgagat	gtatttgtcc	agattgtctc	gttctaacaa	540
ggtaattcct	gagtttcaaa	gggaggcttt	taacagggtat	gcagaagctc	ccaacgaagt	600
ctgctgctct	aaaacttttc	aggattgtcg	aatacatccg	ccagagaata	gtggtagaag	660
atacgctggt	gctctgcaca	gtttgtatga	tattcctgtg	catgagtttg	gagctgcgtt	720
aatatctaag	aatatacatg	tatgttatgc	agcttccatt	ttggcagaag	cattattact	780
agaccagacg	gaggttacgc	ttaatgaaat	aggcgcaact	ttcaaaagag	aagggtgatga	840
tgtttctttt	ttcttttgctg	atgaaagtac	tttaaattat	agtcataaat	acaaaaatat	900
cttgcaattat	gtagttaaata	cttactttcc	tgcttctagt	agaatagttt	actttaagga	960
attttttagtc	actaggggtta	atacttggtt	ttgtaaattt	accaaagtag	atacctatat	1020
tctgtacaag	agtgttagac	aagtaggggtg	tgatagtgat	cagttctatg	aggcgatgga	1080
agacgccttt	gcttacaaga	aaaccttggc	catgttcaac	actgaaagag	caatcttttag	1140
agacacggct	tcgggttaact	tttgggtccc	taagatgaag	gacatggtga	tagtaccgct	1200
gttttgagggt	tctattacca	gcaaaaagat	gacaaggagt	gaggtcattg	ttaatcgtga	1260
cttcgttttac	acagtgcctta	atcatatcag	aacatatcaa	gccaaagcgt	taactttacca	1320
gaacgtatta	tctttcgtgg	agtctataag	atcccgcgtg	ataatcaatg	gtgttactgc	1380
taggtctgaa	tgggatgtag	ataaagcaat	tcttcaaccc	ttgtcaatga	ctttcttctt	1440
gcagactaag	ctggctgcgc	ttcaagacga	tatagtaatg	ggaaagtttc	ggtgcttgga	1500
taagaccact	tctgaactta	tttgggatga	ggtgggcaaa	ttttttggaa	acgttttccc	1560
cactatcaaa	gagagattgg	tgagcaggaa	aattctggat	gtaagtgaga	atgctctgaa	1620
gatcaagatc	ccagatctgt	atgtcacatg	gaaagacagg	ttcgtagctg	aatacaccaa	1680
gtctgaggag	ttaccgcatc	tagatatcaa	gaaggactta	gaagaagctg	agcaaagtga	1740
cgacgcgtta	tcagaattat	ctatccttaa	gggtgctgat	aatttcgata	tcgcgaagtt	1800
caaagacatg	tgcaaggctt	tagatgttag	tcctgatgtg	gcagcacgag	taatcgttgc	1860
agtggccgag	aatagaagcg	gtttaactct	tacttttgat	aagccaaccg	aggagaatgt	1920
ggctaaggct	cttaaaagca	cggcgtctga	ggcgtggta	tgtcttgaa	cgacatccga	1980
agaggtgaac	gtaaataaat	tttctattgc	tgagaaaggg	agattgcctg	tgtgtgcaga	2040
aagtcattgg	ttgacgaatg	ctaacttaga	gcaccaggag	ttggagtccc	tcaacgattt	2100
ccataaggct	tgcgtggata	gtgtgattac	aaagcaaatg	gcacgcgttg	tctacactgg	2160
ctcactcaaa	gttcaacaaa	tgaagaacta	tgtggacagt	ttggcagctt	cgttgtccgc	2220
cactgtatca	aatctatgca	agtcactaaa	ggatgaagtc	gggtatgatt	ctgattccag	2280
ggagaaagtt	ggtgttttgg	atgtcacttt	gaaaaagtgg	ctcctcaaac	ctgcggccaa	2340
aggtcattca	tggggagttg	tcctggatta	caaggggaaa	atgtttactg	cacttctatc	2400
ttatgaagga	gatagaatgg	tgactgagag	cgactggagg	agggtggctg	tatcatctga	2460
tacaatggta	tattctgata	ttgcaaagct	ccaaaatctg	aggaaaacaa	tgagagacgg	2520
tgaacccccac	gaacctactg	caaagatggt	acttgtggat	ggggtgcctg	gttgtggaaa	2580
gtacaaagga	gattttgaaa	gatttgatct	tgatgaggat	ttgatcttgg	ttcctggaaa	2640
acaagctgct	gctatgatca	gaagaagggc	taattcatct	ggactgataa	gagccacaat	2700
ggacaatgtg	agaacggtag	attcacttct	aatgcatcca	aaaccgcat	cacacaagag	2760
gctttttatt	gatgaagggt	tgatgctgca	caccggttgt	gttaacttcc	tgggtgcttat	2820
ctctggttgc	gacatcgcat	acatttacgg	agatacacag	cagattcctt	tcattaacag	2880
agttcagaat	ttcccgtatc	ccaaacattt	tgagaagctg	caagtggatg	aagttgagat	2940
gaggaggacc	acactgagat	gcccagggtga	tgtgaatttt	ttcctacaat	cgaagtacga	3000
aggagcgggtg	acaaccactt	caactgtaca	acgatcggtc	tcacttgaga	tgataggcgg	3060
taagggagta	ctaaacagtg	tttccaaacc	actaaaaggg	aaaattgtaa	ctttcactca	3120
ggctgataaa	tttgagttag	aggagaaggg	ctataagaat	gtgaacaccg	ttcatgagat	3180
ccaaggagaa	acctttgaag	atgtgtcgct	ggtcagattg	acggcaactc	cactgactct	3240
gatttccaag	tcttccccgc	atgttctagt	cgctctgact	agacacacaa	agagcttcaa	3300

atattacacc gtagtgtag atccttttagt acagataatt agtgatttgt cttctttaag 3360
 ctccttcctt ttagaaatgt atatggtaga agcaggtagt agatagcaat tacagatgga 3420
 tgcagtgttc aaaggtcata atctctttgt ggcaacacct aaatcaggag actttccaga 3480
 tctacagtgc tattacgatg tatgcctccc tggtaaatagt actatactta acaagtatga 3540
 tgctgttacc atgagggttac gtgataatag tcttaaatgtg aaggattgtg ttcttgattt 3600
 ttccaaaagt attccgatgc caaaggaggt gaaaccatgt ctagagccag ttttgcgtac 3660
 cgcggcggaa ccgccaaggg ctgcaggact actcgaaaat ctgggtgcaa tgattaaaag 3720
 aaatttcaac gcaccagacc tgacggggac gattgacatt gagagcaccg catctgttgt 3780
 agtagataag ttttttgata gctattttat taaaaaagaa aaatacacaa aaaatattgc 3840
 tggagtgtatg acgaaggatt caatgatgag atgggttgga aacaggaaag aagtactatt 3900
 ggacgacttg gctaactaca attttacaga tctgccggcc atcgatcagt acaagcacat 3960
 gatcaaggct caacccaaaac agaaattgga cctttcaatt cagaatgaat accctgctct 4020
 gcaaacaatt gtctaccatt cgaagcagat caacgggtatt ttggccgggt tctcagagct 4080
 tacaaggttg ctgctcgagg catttgattc taagaagttt cttttcttta ctaggaaaac 4140
 tccagaacag attcaagaat ttttctcgga tctcgactcg cacgttccta tggatgtgtt 4200
 agaactggat atttctaagt atgataagtc acagaacgag tttcattgtg ctgtagagta 4260
 tgaaatatgg aaaagatttg gtctcaatga gtttttgcc gaagtgtgga aacaagggca 4320
 caggaaaaca actttgaagg attacattgc tggaaatcaag acatgtctgt ggtatcaaag 4380
 gaaaagcggg gatgtgacta ctttcatcgg caatactgtt ataatagcag cttgcttggg 4440
 ttcaatgtta ccgatggaaa aggtcataaa aggtgctttt tgtggagacg attccgtttt 4500
 gtattttcca aagggttttg atttccctga cattcagtc tgtgctaata tcatgtggaa 4560
 ttttgaggcc aaactgtata gaaagaggta cggttacttt tgtggtagat acatcataca 4620
 ccatgataag ggagcaatag tgtattatga tcctttgaag ttgatctcca aacttggggc 4680
 aaaacatatc aaggattatg atcacttaga agagttaagg gtgtctttgt gcgatgttgc 4740
 ttgttcgctc ggaaaactgg gtcttaggctt tccgcagctg aacgcagcta tcaaggaggt 4800
 tcataaaacc gcgattgatg gtctggttgc ttttaattgt gttaacaaat ttttgtgtga 4860
 taaattttta tttagaactt tgtttttaaa tggctgttag tctcagagat actgtcaaaa 4920
 ttagcgagtt cattgatctt tcgaaacagg atgagatact tccggcattc atgactaagg 4980
 tcaagagtgt tagaatatcg actgtggaca agattatggc tgttaagaat gatagtcttt 5040
 ctgatgtaga tttacttaaa ggtgttaagt tagttaagaa agggatatgt tgcttagctg 5100
 atttggtagt gtctggggag tggaaatctc cggataactg ccgtgggtgt gtcagtgttt 5160
 gtattgtaga taagagaatg aaaaggagta aggaagcaac gctgggtgct tatcacgcc 5220
 ctgcttgcaa aaagaatttt tcttttaagc taatccctaa ttattcaata acatccgagg 5280
 atgctgagaa gcacccgtgg caagtgttag tgaatatcaa aggagtggct atggaagaag 5340
 gatactgtcc tttatctttg gagttcgttt caatttgtgt agtacataaa aataatgtaa 5400
 gaaaaggttt gaggaacgt attttgagt tgacagacgg ctcgccaatt gaactcactg 5460
 aaaaggttgt tgaggagttc gtggatgaag tacciaatggc tgtgaaactc gaaaaggttc 5520
 cggaaaacaa aaaagaaatg gtaggtaata atgttaataa taagaaaata aataacagtg 5580
 gtaagaaggg ttttaaaatt gaggaattg aggataatgt aagtgatgac gagtctatcg 5640
 cgtcatcgag tacgttttaa tcaatatgcc ttatacaatc aactctccga gccaatttgt 5700
 ttacttatct tccgcttacg cagatcctgt gcagctgac aatctgtgta caaatgcatt 5760
 gggtaaccag tttcaaacgc aacaagctag gacaacagtc caacagcaat ttgcggatgc 5820
 ctggaaacct gtgcctagta tgacagttag atttctctgca tcggatttct atgtgtatag 5880
 atataattcg acgcttgatc cggtgatcac ggcgttatta aatagctttg atactagaaa 5940
 tagaataata gaggttgata atcaaccgc accgaatact actgaaatcg ttaacgcgac 6000
 tcagagggtg gacgatgcta ctgtagctat aagggttca atcaataatt tggctaataga 6060
 actggttcgt ggaactggca tgttcaatca agcaggcttt gagactgcta gtggacttgt 6120
 ctggaccaca actccggcta ctagctatt gttgtgagat ttcctaaaat aaagtcgctg 6180

aagacttaaa attcaggggtg gctgatacca aaatcagcag tggttgttcg tccacttaaa 6240
 tataacgatt gtcatactctg gatccaacag ttaaaccatg tgatgggtgta tactgtggta 6300
 tggcgtaaaa catcgagagag gttcgaatcc tcccctaacc gccggtagcg gccca 6355

<210> 6

<211> 2346

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequenc : nucleotide
 sequence of the tomato phytoene desaturase (pds)
 encoding cDNA

<400> 6

cttttactag ttatagcatt cggatatcttt ttctgggtaa ctgccaaacc accacaaatt 60
 acaagtttcc atttaactct tcaacttcaa cccaaccaa tttatttctt taattgtgca 120
 gaaccactcc ctatatcttc taggtgcttt cattcggtcc gaggtaagaa aagatttttg 180
 tttctttgaa tgctttatgc cactcggtta acttctgagg tttgtggatc ttttaggcga 240
 cttttttttt ttttgtatgt aaaatttggt tcataaatgc ttctcaacat aaatcttgac 300
 aaagagaagg aattttacca agtatattagg ttcagaaatg gataattttc ttactgtgaa 360
 atatccttat ggcagggtttt actgttatatt ttcagtaaaa tgcctcaaat tggacttggt 420
 tctgctgtta acttgagagt ccaaggtagt tcagcttatt tttggagctc gaggtcgtct 480
 tctttgggaa ctgaaagtcg agatgggtgc ttgcaaagga attcggttat ttttgcgtgt 540
 agcgaatcaa tgggtcataa gttaaagatt cgtactcccc atgccacgac cagaagattg 600
 gttaaggact tggggccttt aaaggctcgt tgcattgatt atccaagacc agagctggac 660
 aatacagtta actatttgga ggctgcattt ttatcatcaa cgttccgtgc ttctccgcgc 720
 ccaactaaac cattggagat tgttattgct ggtgcagggt tgggtgggtt gtctacagca 780
 aaatatttgg cagatgctgg tcacaaaccg atactgctgg aggcaaggga tgttctaggt 840
 ggaaaggtag ctgcatggaa agatgatgat ggagattggt acgagactgg tttgcatata 900
 ttctttgggg cttacccaaa tttcagaac ctgtttggag aattagggat taacgatcga 960
 ttgcaatgga aggaacattc aatgatattt gcaatgccaa gcaagccagg agaattcagc 1020
 cgctttgatt tctccgaagc tttacccgct cctttaaatg gaatttttag catcttaaag 1080
 aataacgaaa tgcttacatg gccagagaaa gtcaaatttg caattggact cttgccagca 1140
 atgcttggag ggcaatctta tgttgaagct caagatggga taagtgttaa ggactggatg 1200
 agaaagcaag gtgtgccgga cagggtgaca gatgaggtgt tcattgctat gtcaaaggca 1260
 ctcaacttta taaaccctga cgaactttca atgcagtgca ttttgatcgc attgaacagg 1320
 tttcttcagg agaaacatgg ttcaaaaatg gccttttttag atggtaatcc tctgagaga 1380
 ctttgcattg cgattgttga acacattgag tcaaaagggt gccaaagtcag actgaactca 1440
 cgaataaaaa agattgagct gaatgaggat ggaagtgtca agagttttat actgagtgc 1500
 ggtagtgcaa tcgagggaga tgctttttgt tttgccgctc cagtggatat tttcaagctt 1560
 ctattgcctg aagactggaa agagattcca tatttccaaa agttggagaa gtttagtcgga 1620
 gtacctgtga taaatgtaca tatatgggtt gacagaaaac tgaagaacac atatgatcat 1680
 ttgctcttca gcagaagctc actgctcagt gtgtatgctg acatgtctgt tacatgtaag 1740
 gaatattaca accccaatca gtctatgttg gaattgggtt ttgcacctgc agaagagtgg 1800
 atatctcgca gcgactcaga aattattgat gcaacgatga aggaactagc aacgcttttt 1860
 cctgatgaaa tttcagcaga tcaaagcaaa gcaaaaatat tgaagtacca tgttgtcaaa 1920
 actccgaggt ctgtttataa aactgtgccg ggttgtgaac cctgtcggcc tttacaaaga 1980

tccccaatag agggggtttta tttagccggt gactacacga aacagaaata cttggcttca 2040
atggaaggcg ctgtcttatac aggaaagctt tgtgctcaag ctattgtaca ggattatgag 2100
ttacttggtg gacgtagcca aaagaagttg tcggaagcaa gcgtagttta gctttgtggg 2160
tattattttag cttctgtaca ctaaatttat gatgcaagaa gcggtgtaca caacatatag 2220
aagaagagtg cgagggtgaag caagtaggag aaatgttagg aaagctccta tacaaaagga 2280
tggcatgttg aagattagca tctttttaat cccaagttaa aatataaagc atattttatg 2340
gaattc 2346

<210> 7

<211> 7096

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: nucleotide
sequence of the tobacco nitrate reductase (nia-2)
encoding cDNA

<400> 7

tacatacaag ggcgcgaata aacttttttt aaagtaaagt tatatgaact tgcaatgaaa 60
gaggacctta acttgtttgt ctttgttgct ttctgcaaact ttcaccttaa cagcccattt 120
gagattgatt tagttagtta taacaattag ttaaagtctt gtgtaatttg aagaaaatat 180
ttggacgtgc tcgctgaaaa cattatactc ctatataata gaaatacttt ctgaaaagtt 240
gggtcttggtc aaaaacgtat aagagagttg gtcttctcat aaatagtcac tagctttctg 300
attttttttc actttctata tcacgtaaat aggtactcaa atttgatatt tacaccaaac 360
aaatgaaaat aggatatgtg tttttcatac gtatatattat ctatcgtact taatgatata 420
tacatatata tataacctta ctttttgatt actaaaaatt taattatatt taatttgggt 480
aaatatcaga tgccacaaaa catttaccta gccactgttt ttgactacta aaaatttaatt 540
tatgttttagc ttgggtaaat atcagatgtc actaaacatt ttacctagcc attcctccga 600
aaagaaattg agaaggaaat tagagttagt ggagccataa taatgtttta tgtgaccata 660
actcggtgaa aaccacggca agaataagaa acagctgtta aggctaacca acagctgcat 720
atctttaagc catttgctat taccacaaca tcgcatcttc ctctgatccc gaccctacgg 780
gcgtaaaaag tgtaaatcgt tagaattggt ttatttattt tatgatgtca ctatttttta 840
aaatcaaaat taaattgggg tgtcgatttt tttgggtcct gcttatgtat agtatggcgc 900
tatggaggca ctgagagagt ccgaaacgtt tctatataag gccacccac gcattcacaa 960
acttcgttcc caaacagaac aagaaaatca aatctcggag agagagagag agaaatatatt 1020
tgagagagaa atacagaaaa tctctcttcc ttctttcctt tttttttcaa tccccattca 1080
tattcttttt ttagaataat ctatggcggc atctgtcgaa aacaggcagt tcagtcacct 1140
agaagccggt ttatcccggt ctttcaagcc cgggtctgat tccccggtt gtggctgcaa 1200
cttcccttcg cccaacagta ctaatttcca aaagaaacca aattccacca ttaccttga 1260
ttactcgtcg agtgaagacg acgatgatga tgacgaaaaa aatgagtacc ttcaaagtat 1320
taaaaaaggg aattcagagt tagagccatc tgttcatgac actagggacg aagggtaccgc 1380
tgataattgg attgaacgca acttttccat gattcgtctc accggaaagc atccatttaa 1440
ctccgaacca ccgttgaacc ggctcatgca ccacggcttt atcacaccgg tcccatttca 1500
ttacgttctg aaccatggac cggttcccaa gggcacgtgg gatgactgga ccgtggaagt 1560
cacgggacta gtgaagcgtc ctatgaaatt cacaatggac cagttgggta acgaattccc 1620
ttgtagagaa ttgcccggtta cgcttggttg tgctggcaat cgaaggaaaag aacagaacat 1680
ggttaaacaa accattgggt tcaactgggg cgccgctgcc gtttcaacaa cgatatggcg 1740

cggggtaccc ctccgcgctt tgctaaaacg gtgcgggtgtt tttagcaaga ataaaggggc 1800
 gcttaatgtt tgcttcgaag gagctgatgt gttgcccgga ggtggtggtt caaagtatgg 1860
 aaccagcatt aagaaggaat ttgcaatgga tccagcacga gatatcatcg tagcctacat 1920
 gcagaacgga gaaaaattgg caccgcacca cgggtttcca gtacgaatga taattccagg 1980
 attcattgga ggaagaatgg tgaaatggat aaagaggatt atagtcacca cccaagaatc 2040
 agacagctat tatcatttca aggacaatag agttcttctt ccccatgttg atgctgaact 2100
 tgcaaatacc gaaggtagct accgtaacta tttcaattta ttactccatt tgttccaatt 2160
 tatgtgaacc tatttctctt ttggtccggt caaaaaagaa tgaacccttt ctaaatttgg 2220
 taacaattta gcttaaaactt acaacttcac ccttaatgag aaacttttat aaccacacaa 2280
 ataccctggg gcccatgttg acttggttag gtcgacaaat tccaaaagtt ttattttttt 2340
 cttaaacttc gtgctcagtc aaacagggttc acgtaaattg aaacgggagag agtatcattt 2400
 ttattaaggg gtataaatat attttaatta gttgagactt gcacatacaa gtaaaatatt 2460
 tcttagaata caaaatcaac tgaaagctta ctcttaatta tatggttttg aattttcctt 2520
 tcaatgaagt aaataaaaag gaaacaatta tattcaacgc atgtaggtat atggtcctgt 2580
 cattatctca aatcaaatgg tttaaagaca aaggactttg gaaacataga attgtcagct 2640
 ttatagttat ggagtactat attagtttagc tgtttgcac tattcataat tgggtctatct 2700
 gtgtgcagca tgggtgtaca agccagagta tatcatcaat gagcttaata ttaactctgt 2760
 cattacgacg ccgtgtcatg aagaaatttt gccaattaac gcctggacga ctacgcgacc 2820
 ttacacgttg aggggctatt cttattctgg ttagtatttt tatattttcc gattttgctg 2880
 agaatatcat atttcttagt ttgtcgata catcgatcc tetaactctg acgttttact 2940
 tegtcttat gcaccactt acgtccttac tttctcagac agtttattga tgaaaactac 3000
 ttactatttt cgaccgata gcctcagcgt ccttaattaa atgtgatgtt ttgaaagaga 3060
 tattctctcc cgtctatttt aattaatttt tggctgtttt tatacgtggg aatctatttt 3120
 taacattaat taatatagaa atgaaccata ttaatatatt taattttctt attgaaaata 3180
 caacaaatac tcttcggctc ttactacaat gacaattttg aagaaaaata attaatcctt 3240
 tcctaataatc tgaaaaatca aatattgtgg accataaaaa aaggtcaaaa aattaattaa 3300
 aatgaactgg agagagtaaa ttagaaaata taattatagc actagtaatt aaagttatta 3360
 gatgtcttct ttaaaaagcg tgtgaaaact ttaaagacga aatataatat gaattattatc 3420
 taataacttag aaagtgtcaa taattggtag acaattttaa ctatatacta gttaaaaagt 3480
 ctgtcaatac aactattagt attggggatt agagagaata gtagtaaaat ggagtaattg 3540
 gacgcattgag cttgggcatg ctgattgctg tcagcttggt tgctaatgtg aaaaagaaaa 3600
 tagtaagaaa aggccaacat ggttttgttt attttattat gtggttagtac acaaaaacct 3660
 ggggagcttt cctagttctg aagagtcggt ctttggttagc acaaaaattaa tagtatagta 3720
 taccaagtga atattaaatt caattgtcta aagcacggaa tctttttgac tacttttagtt 3780
 cctgcattctt ggggtgcctc aacaacaccc tttattgaat tattatagta atgttcaata 3840
 taatatacaa ttagaaaaca ctctaagtgg tcactttata tggatctagt caatactatt 3900
 tcttctaaac aacgtgccta attacttccc actttccagt acatgaccac cattaagttt 3960
 aatttttgtc aattccttgt gcaattggcc cttcaaata gcagaagtgt tacgtaggaa 4020
 aactaacttc agctactatt ataggagtaa acctgttagg aaaagatgct cgaggaaactg 4080
 acaaaacttg tagaataatt agccattgta ttgattgaaa tactgattgt gaacgtgtaa 4140
 caaacaggcg gagggaaaaa agtaacgcga gtagaagtga cggtggatgg aggagaaaca 4200
 tggcaagtta gcacactaga tcaccagag aagcccacca aatatggcaa gtactggtgt 4260
 tgggtgctttt gggtactcga ggttgagggt ttagacttgc tcagtgttaa agaaattgct 4320
 gttcgagctt gggatgagac cctcaatact caaccgaga agcttatttg gaacgtcatg 4380
 gtacgttcac ttcttctttt acctttattt cttttaactt ctatatacta gcggtgtaaa 4440
 gttattttac accataagtt aacttaca aaatgtgtaac tatttatact acgagtgatg 4500
 agggcaagaa ggggtttaag tatttgacaa taaatgtaaa ccttgcaatt ttgttcctaa 4560
 ttttttatcc tttcaactct ttgtgattgc ttcattatct agattcacag agcacatgtg 4620

```

ttcacatgcc aaaacaaaaa actacaaaac aaaaaacttt tcactagctt tagtctaaga 4680
ttccccctttt ttttttttggg aggtgtgtggg tccatactcc atagatcaat tccagccact 4740
gacgtaccaaa accctgaaaaa ttcctagtag ttatagcgac gtacaatcat ttcattattat 4800
gtaagcagag acgtgatcac atgaactaga tgtgaatacc acttgcccag tccaccaggt 4860
caattcatct agatgtgtaa atcttgacac cagcactggg tcactttttat aacactagca 4920
ttaaacaaca tttcatcctt gaacattact tgggctaatt aataagtatt tttttttata 4980
tactctaaaa attgtaatta cataaatgaa ttttaacttat acacgctgac aatgtttacta 5040
attccactttt ttacggacgg ttatctatag aaatcattta ggtgaaacaa ttctcttaca 5100
ctatgatcag tgttagtaca taatggttat tacattttct aaatattgtg ctatgttgca 5160
atgttcaggg aatgatgaat aattgctggt tccgagtaaa gatgaatgtg tgcaagcctc 5220
acaagggaga gattggaata gtgtttgagc atccgactca acctggaaac caatcaggtg 5280
gatggatggc gaaggagaga catttggaaga tatcagcaga ggcacctcaa acactaaaga 5340
agagtatctc aactccattc atgaacacag ctccaagat gtactccatg tccgaggtca 5400
ggaaacacag ctctgctgac tctgcttgga tcatagtcca tggatcatatc tatgacgcca 5460
cgcgtttctt gaaagatcac cctgggtggga ctgacagcat tctcatcaat gctggcactg 5520
attgcactga ggaatttgat gcaattcatt ctgataaggc taagaagctc ttggaggatt 5580
tcaggattgg tgaactcata actactgggt acacctctga ctctcctggc aactccgtgc 5640
acggatcttc ttccttcagc agctttctag cacctattaa ggaacttggt ccagcgcaga 5700
ggagtgtggc cctaattcca agagagaaaa tcccatgcaa actcatcgac aagcaatcca 5760
tctcccatga tgttaggaaa tttcgatttg cattgccctc tgaggatcaa gtcttgggct 5820
tgctgttggt aaaacatata ttcctctgtg cgtttattga cgataagctc tgcatgcgcg 5880
cttacacgcc tactagcacg atcgatgagg tgggggtactt cgagtttggt gtcaagatat 5940
acttcaaagg aattcaccct aaattcccca atggagggca aatgtcacag tatcttgatt 6000
ctatgccgtt aggggtcattt ctgcacgtga aagggtccatt aggtcacatt gaataccaag 6060
gaaagggaaa tttcttagtt catggcaaac agaagtttgc caagaagttg gccatgatag 6120
caggtggaac aggaataact ccagtgtatc aagtcatgca ggcaattctg aaagatccag 6180
aagatgacac agaaatgtat gtgggtgtatg ctaacagaac agaggatgat attttactta 6240
aggaagagct tgattcatgg gctgagaaaa ttccagagag gggttaaagt ttggtatgtgg 6300
ttcaggattc tattaaagaa ggatggaagt acagcattgg ttttattaca gaagccattt 6360
tgagagaaca tatccctgag ccattctaca caacactggc tttggcttgt ggaccacctc 6420
ctatgattca atttgctgtt aatccaaact tggagaagat gggctatgac attaaggatt 6480
ccttattgggt gttctaattt taaaaacaaa acaatatctg caggaataaaa tttttttttt 6540
ccccctatca gttgtacata ttgtatttgg tttatcacc ccatgtacta cgtagtgttt 6600
gtagttctta cattttttatt ttttagaatt tttttaaac ttaggatata aaggttttct 6660
cttccaacaa agtgattctt tagggaagaa atgtactgta ctgtactagt atgtctaagc 6720
cgaaagttgt aatgtttacc atgacaaatt gtattcaatt cctcatggaa tagtaacatt 6780
gtgttcattg gtcttcctgt aagcgatctt caaaatatca atgtatatat atagtaattg 6840
caaaccattg ttccttttcc cgatgtagtt aactactctt tcttttagct ctagtctctg 6900
gtgaatattt ttttttctat aactctttta ttaatacggc cttaaataag agaaaagt 6960
aaaccacgaa tatcattatg cagacgtata ggtaattaat ctactttttg aaaaaaatc 7020
tattttcttt atgtggctct tcaaaataat attctagaac cttttgtata ttccctttta 7080
acttctattt agttttt

```

<210> 8

<211> 1839

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: nucleotide
sequence of the tobacco nitrite reductase (nir-1)
encoding cDNA

<400> 8

tttctattaa atttctggca ccttcattgc caaatccagc tagattttcc aagaatgctg 60
tcaagctcca cgcaactccg ccgtctgtgg cagcgccgcc agctgggtgct ccagagggtg 120
ctgctgagag gctagaaccc agagttgagg aaaaagatgg ttattggata ctcaaggagc 180
agtttagaaa aggcataaat cctcaagaaa aggtcaagat tgagaagcaa cctatgaagt 240
tgttcatgga aaatggtatt gaagagcttg ctaagatacc cattgaagag atagatcagt 300
ccaagcttac taaggatgat attgatgtta ggcttaagtg gcttggcctc ttccatagga 360
gaaagaacca atatgggagg ttcattgatga gattgaagct tccaaatgga gtaacaacga 420
gtgcacagac tcgatacttg gcgagtgtga taaggaaata cgggaaagaa ggatgtgctg 480
atattacaac gaggcaaaat tggcagattc gtggagttgt actgcctgat gtgcccagaga 540
tactaaaggg actagcagaa gttgggttga ccagtttgca gaggggcatg gacaatgtca 600
ggaatccagt aggaaatcct cttgctggaa ttgatccaga agaaatagta gacacagggc 660
cttactactaa tttgctctcc caatttatca ctggcaattc acgaggcaat cccgcagttt 720
ctaacttgcc aaggaagtgg aatccgtgcg tagtaggctc tcatgatctt tatgaacatc 780
cccatatcaa cgatctcgcg tacatgcctg ccacgaaaga tggacgattt ggattcaacc 840
tgcttgtggg tgggttcttc agcgcaaaaa gatgtgatga ggcaattcct cttgatgcat 900
gggttccagc tgatgatgtt gttccggttt gcaaagcaat actggaagct ttagagatc 960
ttggtttcag agggaacaga cagaaatgta gaatgatgtg gttaatcgat gaactgggtg 1020
tagaaggatt cagggcagag gtcgagaaga gaatgccaca gcaagagcta gagagagcat 1080
ctccagagga cttggttcag aaacaatggg aaagaagaga ttatcttggg gtacatccac 1140
aaaaacaaga aggctacagc tttattgggtc ttcacattcc agtgggtcgt gttcaagcag 1200
acgatatgga tgagctagct cgtttagctg atgagtatgg ttcaggagag atccggctta 1260
ctgtggaaca aaacattatt attcccaaca ttgagaactc aaagattgag gcactgctca 1320
aagagcctgt tctgagcaca ttttcacctg atccacctat tctcatgaaa ggtttagtgg 1380
cttgtactgg taaccagttt tgtggacaag ccataatcga gactaaagct cgttccctga 1440
tgataactga agaggttcaa cggcaagttt ctttgacacg gccagtgagg atgcaactga 1500
caggctgccc gaatacgtgt gcacaagttc aagttgcgga cattggattc atgggatgcc 1560
tgactagaga taagaatgga aagactgtgg aaggcgccga tgttttctta ggaggcagaa 1620
tagggagtga ttcacatttg ggagaagtat ataagaaggc tgttccttgt gatgatttgg 1680
taccacttgt tgtggactta ctagttaaca actttgggtg agttccacga gaaagagaag 1740
aaacagaaga ctaataaaat ttagaatagt tgggtgattt gctgtgttca taacatgtaa 1800
tgtatgataa atcaatgcaa acatttctac ctacgtgag 1839

<210> 9

<211> 1294

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: cDNA of the
beta-1,3-glucanase of *Nicotiana plumbagenifolia*

<400> 9

```

ttgctcttca aatggctgct attatactgc taggattgct tgtttccagc actgagatag 60
taggagctca atcagtaggt gtttgctacg gaatgctggg caacaacttg ccaccagcat 120
cacaagttgt acaactgtac aagtcaaaaa acataagaag aatgaggctt tatgatccaa 180
atcaagcagc tttacaggct ttaagaggct ccaacattga agttatgtta ggagttccca 240
attcagatct ccaaaacatt gctgctaacc cctcaaatgc aaataattgg gtccagagga 300
atgtcagaaa tttctggcca gccgttaa attaggtacat tgccgttgga aatgaagtca 360
gccctgtaac aggacatct tcaactaccc gatattctt tccggccatg aggaacattc 420
ggaatgcgat ttcttcagca gggttgcaaa acaatatcaa agtctcaagt tctgtagaca 480
tgaccttgat tgggaactct tttccaccat cacagggttc gtttaggaac gacgttaggt 540
cgttcattga tccgattatt ggggttgtaa ggcgcataaa ttcgccttta ctcgttaaca 600
tttatcetta ttttagctat gctggtaatc cgcgcgatat ttctctcccc tatgctcttt 660
tcaactgctc aaatgtggtg gtacaagatg gttcacttgg atatagaaac ttatttgatg 720
caatgtcgga tgctgtgat gctgccctgt ctcgagccgg agggggctcg atagagattg 780
ttgtgtccga gagtggtggt ccactgtctg gcgcatttgc cgcgacaaca aacaatgcag 840
caacttacta caagaactta attcagcatg ttaaaagggg tagtccaaga aggcctaata 900
aagtcattga gacctattta tttgctatgt ttgatgagaa taacaaaaac cctgaattgg 960
agaaacattt tggactcttt tcccccaaca agcagcccaa atatccactc agctttgggt 1020
tttcagatag atattgggac atttctgctg aaaataatgc tactgcagct tctctcataa 1080
gtgagatgtg ataagagagt tctctttaa tatctttaca tggatggaaa acttagtacc 1140
aataactaga ttgtttcttt ctttatgcaa tttcttgta atgagagact agtacttgct 1200
ctctgtgtcc ttgtggagag taactagaga caaattaagc aaataacata aataattgag 1260
tgttgattct gcaatgataa atagaaaaaa aaaa 1294

```

<210> 10

<211> 720

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: green
fluorescent protein encoding region

<400> 10

```

atggtgagca agggcgagga gctgttcacc ggggtggtgc ccactcctggt cgagctggac 60
ggcgacgtaa acggccacaa gttcagcgtg tccggcgagg gcgagggcga tgccacctac 120
ggcaagctga ccctgaagtt catctgcacc accggcaagc tgcccggtgc ctggcccacc 180
ctcgtgacca ccctgacct cggcgtgcag tgcttcagcc gctaccccgga ccacatgaag 240
cagcagcact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg caccatcttc 300
ttcaaggacg acggcaacta caagaccgcg gccgaggtga agttcgaggg cgacaccctg 360
gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac 420
aagctggagt acaactacaa cagccacaac gtctatatca tggccgacaa gcagaagaac 480
ggcatcaagg tgaacttcaa gatccgccac aacatcgagg acggcagcgt gcagctcgcc 540
gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac 600
tacctgagca cccagtccgc cctgagcaaa gaccccaacg agaagcgcga tcacatggtc 660
ctgctggagt tcgtgaccgc cgccgggatc actctcgga tggacgagct gtacaagtaa 720

```

<210> 11

<211> 1809

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial

Sequence: beta-glucuronidase encoding region

<400> 11

atggtccgctc ctgtagaaac cccaacccgt gaaatcaaaa aactcgacgg cctgtgggca 60
ttcagtcctgg atcgcgaaaa ctgtggaatt gatcagcgtt ggtgggaaag cgcgttacaa 120
gaaagccggg caattgctgt gccaggcagt tttaacgata agttcgccga tgcagatatt 180
cgtaattatg cgggcaacgt ctggtatcag cgcgaaagtct ttataccgaa aggttgggca 240
ggccagcgta tcgtgctgctg ttctgatgag gtcactcatt acggcaaagt gtgggtcaat 300
aatcaggaag tgatggagca tcagggcggc tatacgccat ttgaagccga tgtcacgccc 360
tatgttattg cggggaaaag tgtacgtatc accgtttgtg tgaacaacga actgaactgg 420
cagactatcc cgccgggaat ggtgattacc gacgaaaacg gcaagaaaaa gcagtcttac 480
ttccatgatt tctttaacta tgccggaatc catcgagcgc taatgctcta caccacgccc 540
aacacctggg tggacgatat caccgtgggtg acgcatgtcg cgcaagactg taaccacgcg 600
tctgttgact ggcaggtggg ggccaatggg gatgtcagcg ttgaactgag tgatgcggat 660
caacaggtgg ttgcaactgg acaaggcact agcgggactt tgcaagtggg gaatccgcac 720
ctctggcaac cgggtgaagg ttatctctat gaactgtgag tcacagccaa aagccagaca 780
gagtgtgata tctaccgctc tcgcgtcggc atccggtcag tggcagtga gggcgaaacag 840
ttcctgatta accacaaacc gttctacttt actggccttg gtcgtcatga agatgcggac 900
ttacgtggca aaggattcga taacgtgctg atggtgcacg accacgcatt aatggactgg 960
attggggcca actcctaccg tacctcgcat tacccttacg ctgaagagat gctcgactgg 1020
gcagatgaac atggcatcgt ggtgattgat gaaactgctg ctgtcggctt taacctctct 1080
ttaggcattg gtttcgaagc gggcaacaag ccgaaagaac tgtacagcga agaggcagtc 1140
aacggggaaa ctcagcaagc gcacttacag gcgattaaag agctgatagc gcgtgacaaa 1200
aaccaccaa gcgtggtgat gtggagtatt gccaacgaac cggatacccg tccgcaagtg 1260
cacgggaata ttctgccact ggcggaagca acgcgtaaac tcgaccgcac gcgtccgata 1320
acctgcgtca atgtaatgtt ctgcgacgct cacaccgata ccatcagcga tctctttgat 1380
gtgctgtgcc tgaaccgtta ttacggatgg tatgtccaaa gcggcgattt ggaaacggca 1440
gagaaggtac tggaaaaaga acttctggcc tggcaggaga aactgcatca gccgattatc 1500
atcaccgaat acggcgtgga tacgttagcc gggctgcact caatgtacac cgacatgtgg 1560
agtgaagagt atcagtgtgc atggctggat atgtatcacc gcgtctttga tcgcgtcagc 1620
gccgtcgtcg gtgaacaggt atggaatttc gccgattttg cgacctcgca aggcattattg 1680
cgcgttggcg gtaacaagaa agggatcttc actcgcgacc gcaaaccgaa gtcggcggtc 1740
tttctgctgc aaaaacgctg gactggcatg aacttcggtg aaaaaccgca gcaggagggc 1800
aaacaatga 1809

<210> 12

<211> 411

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: cDNA copy of
part of the region of a TMV-U2 variant comprising

the origin of assembly

<400> 12

ccctcgccaa ttgaactcac tgaaaaagtt gttgatgagt tcgtagatga agtaccgatg 60
gctgtgaaac tcgaaagggt ccggaaaaca aaaaagagag tggtaggtaa taatgttaat 120
aataagaaaa taaataatag tggtaagaag ggtttgaaag ttgaggaaat tgaggataat 180
gtaagtgatg acgagtctat cgcgtcatcg agtacgtttt aatcaatatg ccttatacaa 240
tcaactctcc gagccaattt gtttacttaa gttccgctta tgcagatcct gtgcagctga 300
tcaatctgtg tacaaatgca ttaggtaacc agtttcaaac gcaacaagct aggacaacag 360
tccaacagca atttgcggat gcctggaaac ctgtgcctag tatgacagtg a 411

<210> 13

<211> 198

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: cDNA copy of
STMV leader region

<400> 13

agtaaaactt accaatcaaa agacctaac aacaggactg tcgtgggtcat ttatgctgtt 60
ggggggacata gggggaaaac atattgcctt cttctacaag aggccttcag tcgccataat 120
tacttggcgc ccaatttttg gtttcagttg ctgtttccag ctatggggag aggtaagggt 180
aaaccaaacc gtaaatcg 198

<210> 14

<211> 455

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: cDNA copy of
STMV trailer region

<400> 14

gacaagtcgc cttggttatt tcgtgttggt ttaactgaac ctcgacataa gccttttggg 60
tcgaagggtta aacgatccgc tcctcgcttg agcttgaggc ggcgtatctc ttatgtcaac 120
agagacactt tgggtctatg ttgtataaca atagatagac tcccgtttgc aagattaggg 180
ttaacagatc ttgccgttag tctggttagc gcgtaaccgg ccttgattta tggaatagat 240
ccattgtcca atggcctttg caatggaacg ccgacgtggc tgtataatac gtcgttgaca 300
agtacgaaat cttgttagtg tttttccctc cacttaaatac gaagggtttt gttttggtct 360
tcccgaacgc atacgttagt gtgactaccg ttgttcgaaa caagtaaaac aggaaggggg 420
ttcgaatccc tccctaaccg cgggtaagcg gccca 455

<210> 15

<211> 1971

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: cDNA copy of
part of the genome of a TMV-U1 variant, comprising
MP and CP genes

<400> 15

ggaacactg tgattatagc tgcattgttg gcctcgatgc ttccgatgga gaaaataatc 60
aaaggagcct tttgtggtga cgatagtctg ctgtacttcc caaaggggtg tgagtttccg 120
gatgtgcaac actccgcgaa tcttatgtgg aattttgaag caaaactgtt taaaaaacag 180
tatggatact tttgcggaag gtatgtaata catcacgaca gaggatgcat tgtgtattac 240
gatcccttaa agttgatctc gaaacttggg gctaaacaca tcaaggattg ggaacacttg 300
gaggagttca gaaggtctct ttgtgatgtt gctgtttcgt tgaacaattg tgcgtattac 360
acacagttgg acgacgctgt atgggaggtt cataagaccg cccctccagg ttcgtttgtt 420
tataaaagtc tgggtgaagta tttgtctgat aaagttcttt ttagaagttt gtttatagat 480
ggctctagtt gttaaaggaa agtgaatat caatgagttt atcgacctga caaaaatgga 540
gaagatctta ccgtcgatgt ttaccctgtt aaagagtgtc atgtgttcca aagttgataa 600
aataatgggt catgagaatg agtcattgtc agaggtaaac cttctcaaag gagttaagct 660
tattgatagt ggatacgtct gttagccgg tttggtcgtc acgggcgagt ggaacttgcc 720
tgacaattgc agaggaggtg tgagcgtgtg tctgggtggac aaaaggatgg aaagagccga 780
cgaggccact ctcgatctt actacacagc agctgcaaag aaaagatttc agttcaaggt 840
cgttcccaat tatgtataa ccaccagga cgcgatgaaa aacgtctggc aagttttagt 900
caatattaga aatgtaaaga tgtcagcggg tttctgtccg ctttctcttg agtttgtgtc 960
ggtgtgtatc gtttatagaa ataataaaa attaggtttg agagagaaga tcacaagtgt 1020
gagagatgga gggcccatgg aacttacaga agaagttgtt gatgagttca tggaagatgt 1080
ccctatgtca atcaggcttg caaagtttct atctcgaacc ggaaaaaaga gtgatgtccg 1140
taaagggaaa attagtagta gtgatcggtc agcgccgaac aagaactata gaaatgttaa 1200
ggatttttga ggaatgagtt ttaaaaagaa taatttaatc gatgatgatt cggagactac 1260
tgtcgcgaa tcggattcgt tttaaatatg tcttacagta tcaactactc atctcagttc 1320
gtgttcttgt cagcagcgtg ggccgaccca atagagttaa ttaatttatg tactaatgcc 1380
ttaggaaaatc agtttcaaac acaacaagct cgaactgtcg ttcaaagaca attcagttag 1440
gtgtggaac cttcaccaca agtgactgtt aggttccctg acagtgactt taagggtgtac 1500
aggtacaatg cggattatga cccgctagtc acagcactgt taggtgcatt tgacactaga 1560
aatagaataa tagaagttga aaatcaggcg aacccacaaa ctgccgaaac gttagatgct 1620
actcgtagag tagacgacgc aacggtggcc ataaggagcg ctataaataa ttagtagta 1680
gaattgatca gaggaaccgg atcttataat cggagctctt tegagagctc ttctgggttg 1740
gtttggaact ctggctctgc aacttgaggt agtcaagatg cataataaat aacggattgt 1800
gtccgtaatc acacgtggtg cgtacgataa cgcatagtgt tttccctcc acttaaatcg 1860
aagggttgtg tcttgatcgc cgcgggtcaa atgtatatgg ttcataaca tccgcaggca 1920
cgtaataaag cgaggggttc gaatcccccc gttacccccg gtaggggccc a 1971